IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application of: Hirokazu OOE et al.		**Before the Board of Appeals**	
Application No.:	10/535,700	Confirmation No.:	7918
Filed:	January 27, 2006	Art Unit:	1711
For:	ION ELUTING UNIT AND DEVICE LOADED WITH SAME	Examiner:	Heckert, J.M.

APPEAL BRIEF

MS APPEAL BRIEF-PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Appeal Brief is in furtherance of the Notice of Appeal filed in this case on September 15, 2010.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1206:

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APPEAL BRIEF ON BEHALF OF APPELLANT

MS APPEAL BRIEF-PATENTS
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P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I. REAL PARTY IN INTEREST

The real party in interest for this application is the Assignee, SHARP KABUSHIKI KAISHA.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 22 claims pending in application.

B. Current Status of Claims

1. Claims canceled: 1, 3
2. Claims withdrawn from consideration but not canceled: 0
3. Claims pending: 2 and 4-24
4. Claims allowed: 0
5. Claims rejected: 2 and 4-24

C. Claims on Appeal

The claims on appeal are claims 2 and 4-24..

IV. STATUS OF AMENDMENTS

An amendment after the Final Rejection of June 16, 2010, was filed on August 4, 2010. This amendment was entered for the purpose of appeal as noted in the Advisory Action dated August 31, 2010.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The invention of independent claim 2 is directed to an ion elution unit (100) that generates metal ions from electrodes (113, 114) when a drive circuit (150) applies a voltage between them. A water feed valve (50a) is provided to feed water to the elution unit (100). See the specification at page 23, lines 23 to 24, at page 24; lines 24-25, line 7 and at page 29, lines 1 to 4, as well as Figs. 2, 3, 6 and 9.

A control unit (120) controls the drive circuit (150) when water is fed to the elution unit (100) by the feed valve (50a). See the specification at page 28, line 21 to page 29, line 24. The control unit (120) microcomputer portion (130) causes drive circuit (150) to apply positive voltage potential to a first electrode (113) to cause it to act as an anode relative to the other electrode (114) acting as a cathode, as explained, for example at page 29, lines 22 to 23. As further explained at page 30, lines 7 to 12, the control unit (120) microcomputer portion (130) causes the drive circuit (150) to reverse the polarity of the voltage applied to the electrodes (113 and 114) to reverse the anode electrode into a cathode electrode and the cathode electrode into an anode electrode. As further explained at page 48, lines 7 to 24, the first polarity voltage and the reverse polarity voltage are alternately applied in first and second application periods T_2 that are

spaced apart by a halt voltage period T_3 in which there is no voltage applied to the electrodes. As noted at page 51, line 20 to page 52, line 17, these first and second voltage application periods for applying the first polarity and reverse polarity voltage (periods T_2) and the halt voltage period (T_3) are adjustable, for example, according to the water used and/or length of the total ion elution period (T_4).

In addition, and as noted at page 52, line 18 to page 53, line2, the electrodes (113, 114) in the unit (100) must be exposed to flowing water so that ions can be eluted into the water.

Finally, and as noted at page 25, lines 8 to 13, the ions produced can be silver ions, copper ions, or zinc ions.

Similarly, the invention of independent claim 24 is also directed to an ion elution unit (100) that generates metal ions from electrodes (113, 114) when a drive circuit (150) applies a voltage between them. A water feed valve (50a) is provided to feed water to the elution unit (100). See the specification at page 23, lines 23 to 24, at page 24; lines 24-25, line 7 and at page 29, lines 1 to 4, as well as Figs. 2, 3, 6 and 9.

A control unit (120) controls the drive circuit (150) when water is fed to the elution unit (100) by the feed valve (50a). See the specification at page 28, line 21 to page 29, line 24. The control unit (120) microcomputer portion (130) causes drive circuit (150) to apply positive voltage potential to a first electrode (113) to cause it to act as an anode relative to the other electrode (114) acting as a cathode, as explained, for example at page 29, lines 22 to 23. As further explained at page 30, lines 7 to 12, the control unit (120) microcomputer portion (130) causes the drive circuit (150) to reverse the polarity of the voltage applied to the electrodes (113 and 114) to reverse the anode electrode into a cathode electrode and the cathode electrode into an anode electrode. As further explained at page 48, lines 7 to 24, the first polarity voltage and the reverse polarity voltage are alternately applied in first and second application periods T_2 that are spaced apart by a halt voltage period T_3 in which there is no voltage applied to the electrodes. As noted at page 51, line 20 to page 52, line 17, these first and second voltage application periods for applying the first polarity and reverse polarity voltage (periods T_2) and the halt voltage period (T_3) are adjustable, for example, according to the water used and/or length of the total ion elution period (T_4).

In addition, and as noted at page 52, line 18 to page 53, line2, the electrodes (113, 114) in the unit (100) must be exposed to flowing water so that ions can be eluted into the water.

Finally, the independent claim 24 ions are limited to being silver ions as disclosed at page 25, lines 4-11.

Dependent claim 4 is directed to the ion elution unit (100) of above-described claim 2, wherein the control unit (120) is further configured (relative to 125) to control the drive circuit (150) to adjust the voltage applied to the electrodes during at least one of the first adjustable voltage application period and the second adjustable voltage application period (the periods T2 noted above when voltages or reverse voltages are applied to the electrodes) such that a constant current flow between the electrodes is maintained as noted in the specification at page 29, lines 1 to 4.

Dependent claim 5 is directed to the ion elution unit (100) of above-described claim 2 with the addition of a current detection unit (160 and 161) for detecting current flowing between the electrodes, wherein the control unit (120) is further configured to control the drive circuit (150) based on the current flowing between the electrodes detected by the current detection unit and to check operation of the current detection unit (160 and 161) before the drive circuit (150) is controlled by the control unit (120) to apply any voltage to the electrodes. See the specification at page 48, lines 1 to 9.

Dependent claim 11 is directed to the above-noted control unit is further configured to control the drive circuit (120) to make the drive circuit (via 130, 150) adjust the overall ion elution period (T4, as noted at 48, lines 23-24) according to the amount of water used as noted at page 51, lines 21-24 .

The summary to the claimed invention herein is being made to comply with the Patent Office rules in submitting Briefs and is not to be considered as limiting the claimed invention.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The Final Office Action provides two (2) grounds of rejection for review on appeal.

1) Claims 2, 4, 10-13, 17-20, and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 2001-276484 (hereinafter '484 to be consistent with the outstanding Final Action) in view of Walsh (Canadian Patent Application Publication No. 2,242,101, hereinafter "Walsh").

2) Claims 5-9, 14-16, and 21-23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over '484 in view of Walsh in further view of Robey (JP 2000-343081, Hereinafter '081 to be consistent with the outstanding Final Action).

VII. ARGUMENTS

A. 103(a) Rejection of claims 2, 4, 10-13, 17-20 and 24

1. Independent Claims 2 and 24

First it is noted that '484 is concerned with a washing machine and that washing machines are not in operation for periods of time in the same range as the periods of operation for the swimming pools and spas that are of concern to Walsh. Note that Walsh statement of the "Field of the Invention" at page 1 that indicates that treatment of water in "swimming pools, spas and the like" is the Walsh concern, not water in a washing machine as in '484. Also note that page 3 (at numbered lines 22-26 of Walsh) describes the swimming pool components of Fig. 1. It is with regard to such a swimming pool or spa that Walsh teaches that an electrode in a cell associated with other pool/spa components (like those noted in numbered lines 13-20 on page 2 and numbered lines 22-26 on page 3) can be periodically switched from being an anode to being a cathode, with this switching occurring as noted in numbered lines 21-25 on page 2 ("typically, by a daily or weekly change-over of the polarity of the cell") or as noted at numbered lines 8-10 on page 4 ("whereby the cell is activated for only part of the time. e.g., 3 hours on, followed by 3 hours off, with a further option of reversing the polarity of electrodes.").

Washing machines are not comparable to or compatible with either a swimming pool or a spa in any reasonable respect. The only thing in common besides the use different amounts of water is the use of ion elution to produce ions in water passing through the elution units. With regard to the clear differences between washing machines and swimming pools, it is noted that washing machines (like that of '484) do not have swimming pool components like those noted at numbered lines 13-20 on page 2 or lines 22-26 on page 3 of Walsh. Moreover, to whatever extent that numbered lines 8-10 on page 4 of Walsh teach that the swimming pool cell could **optionally** "include a timing mechanism (not shown), whereby the cell is activated for only part of the time, e.g., 3 hours on, followed by 3 hours off, with a further option of reversing the polarity of electrodes, " such periods for cell activation have no applicability to the operation of the washing machine elution unit of '484.

Thus, it is submitted to be clear that the artisan would have no reasonable basis to try to adapt the Walsh optional timing arrangement (whereby the swimming pool cell is activated for only part of the time, e.g., 3 hours on, followed by 3 hours off) to the washing machine of '484.

The Advisory Action of August 31, 2010, attempts to gloss over the fact that the Walsh teachings are directed to swimming pools and spas and preventing discoloration and damage to associated swimming pool and spa equipment that is of no concern to the '484 washing machine.

In this regard, the Advisory Action argues:

> In regards to the "field of invention" argument, one of ordinary skill is capable of looking to other established technologies in the field of water treatment when considering the water treatment of a washing machine, especially when said water treatment technologies are based around the same fundamental apparatus, a pair of electrodes.

First of all, the Walsh "Field of Invention" is clearly as noted above - water treatment in "swimming pools, spas and the like." It would be clear even to a laymen that "and the like" has no reasonable applicability to a washing machine. Moreover, to whatever extent that the addition of a halt period is taught, it is not taught to provide "effective biocidal concentrations of ions without discoloration or damage to the appliance" as argued at the above-noted page 3, lines 6-7 of the Final Action. This is a clear error in fact finding because there would be no "effective biocidal concentrations of ions" over the three (3) hour off period that is taught by Walsh. In addition, Walsh is only concerned with discoloration or pool or spa parts, not the discoloration of the parts of any "appliance," and certainly not a washing machine as in '484.

As was noted in the response of August 4, 2010, it is clear from a complete reading of Walsh[1] that the **optional** use of polarity reversal of the electrodes with halt periods of cell operation (when no purification by ion elution is possible) has nothing to do with purifying the water as the water is purified with or without such reversals of polarity, and most certainly in spite of any halt periods. Thus, the rationale presented at page 3 (in lines 10 and 11) of the outstanding Final Action that a reversal of polarities and the addition of a halt period would somehow be needed "to purify the water stream" makes no sense as water purification is not

[1] "While the test for establishing an implicit teaching, motivation, or suggestion is what the combination of [reference statements] would have suggested to those of ordinary skill in the art, the [reference] statements cannot be viewed in the abstract. Rather, they must be considered in the context of the teaching of the entire reference. *See In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000)

disclosed by Walsh to depend on or to be improved by the **optional** use of polarity reversal of the electrodes with the suggested three hour halt periods as to cell operation.

Moreover, it is the addition of zinc to the electrode that is the improvement offered by Walsh in order to avoid pool discoloration problems, not the alternate operation of an electrode as an anode and then as a cathode, with or without the three hour halt periods. Note page 2, numbered lines 8-9 and 19-20 that identify this improvement. Further note page 1 (at numbered lines 17-26) that establishes that the known systems using copper/silver alloy electrodes (without zinc) and with these electrodes "operated, alternatively, as a cathode then anode over a set time interval, under control of a microprocessor," still had the drawback of discoloration as noted in numbered lines 24-26 on page1. Thus the apparent further rationale offered at page 3, lines 6-7, that addition of the **optional** use of polarity reversal of the electrodes with the suggested three hour halt periods of cell operation would provide "effective biocidal concentrations of ions without discoloration or damage to the appliance" clearly makes no sense.

In actuality, Walsh offers no reason at all to **optionally** "include the suggested timing mechanism (not shown), whereby the cell is activated for only part of the time, e.g., 3 hours on, followed by 3 hours off, with a further option of reversing the polarity of electrodes." It seems that this option is only offered because of the previously noted similar optional operation noted as to the prior art copper/silver electrodes in an electrolytic flow cell at numbered lines 21-23 on page 1 of Walsh.

The above-noted Advisory Action misses the point being made. The point was not that there was a lack of a teaching of the above-noted optional timing mechanism, it was that no "reason at all" was presented by Walsh for its suggested optional use in a swimming pool, much less in a completely dissimilar washing machine like that of '484.

Thus, even though the optional use of polarity reversal is taught by Walsh as noted on page 2 of the Advisory Action, the point is that no reason is taught or remotely suggested as to why it should be used in the '484 washing machine that has no three-hour on period. This lack of any reasonable basis to use the Walsh timing option (3 hours on, followed by 3 hours off, with a further option of reversing the polarity of electrodes") with the washing machine of '484 could not be clearer and is again noted to be at odds with what the PTO must show to formulate a proper case of obvious an alleged modification of one reference as taught by another. In this last regard, it could not be clearer that the outstanding Final Action fails to set forth any "articulated

reasoning with some rational underpinning to support the legal conclusion of obviousness" as required by the Supreme Court. *See KSR Int'l v. Teleflex Inc.*, 127 S.Ct 1727, 82 USPQ2d 1385, 1396 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006)).

This lack of any "articulated reasoning with some rational underpinning to support the legal conclusion of obviousness" is not cured by the further statement of the Advisory Action that:

> There is nothing precluding one of ordinary skill from trying polarity reversal, considering Walsh discloses it as part of his invention that provides effective biocidal properties. The claimed elements were known in the prior art and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

To the extent that these statements in the outstanding Advisory Action may be trying to establish a *prima facie* case of obviousness based upon an "Obvious To Try" rationale relative to the assertion of a predictable result, MPEP §2143 establishes that this rationale requires not only that there is a predictable result, the following further criteria must also be established:

> (1) a finding that at the time of the invention, there had been a recognized problem or need in the art, which may include a design need or market pressure to solve a problem;
>
> (2) a finding that there had been a finite number of identified, predictable potential solutions to the recognized need or problem;
>
> (3) a finding that one or ordinary skill in the art could have pursued the known potential solutions with a reasonable expectation of success; and
>
> (4) whatever additional findings based on the *Graham* factual inquiries may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness.

Clearly, the PTO itself requires more than the disclosure of polarity reversal and the use of long halt periods for no particular reason as in Walsh and an allegation of "predictable results," particularly where the alleged "predictable results" are not disclosed by the reference. Again, Walsh gives no particular result to expect from the suggested optional timing of "3 hours on, followed by 3 hours off, with a further option of reversing the polarity of electrodes." If the Examiner disagrees, He should be able to point to the disclosure of the "predictable results" being relied on as taught by Walsh.

Furthermore, independent claim 2 and independent claim 24 both require that the control unit must operate to "adjust at least one of the length of the first adjustable voltage application period, the length of the adjustable voltage application halt period, the length of the second adjustable voltage application period, and the length of an overall ion elution period that includes at least the first adjustable voltage application period, the adjustable voltage application halt period, and the second adjustable voltage application period to adjust the amount of eluted metal ions being produced to a desired level." Clearly, no adjustment of these periods is taught for any reason by either '484 or Walsh and these limitations are being improperly ignored[2] in the outstanding Final Action even though ignoring positively recited claim limitations is not permitted. *See In re Wilder*, 429 F.2d 447, 450, 166 USPQ 545, 548, (CCPA 1970).

The above-noted Advisory Action alleges that "adjustability" was not ignored because claim 16 of Walsh (noted at page 3 or the Final Action) recites "... means for controlling the period of time during which each of the electrodes is operable as an anode or cathode." The Examiner now adds that even though neither claim 16 nor the disclosure of Walsh states that these periods are "adjustable" and even though no mention of the halt period appears in claim 16 or the timer that appears to be the disclosed basis for this "means," page 3 of the above-noted Advisory Action simply concludes, without even a scintilla of evidence, that "[m]eans for controlling a period time points to adjustability." Substantial evidence, not mere conclusions as to what is pointed to are required. The PTO reviewing court has made it clear that the PTO may not simply assert conclusions, it must explain how the reference supports the conclusion, the "full and reasoned explanation" required by *In re Lee*, 277 F.3d 1338, 1342, 61 USPQ2d 1430, 1432-33 (Fed. Cir. 2002). In addition, it is well established that "[t]he scope of a patent's claims determines what infringes the patent; it is no measure of what it discloses," *In re Benno*, 768 F.2d 1340, 1346, 226 USPQ 683, 686 (Fed. Cir. 1985). Thus, if the Examiner is suggesting that the breadth of the claim language "means for controlling" is being relied on as encompassing "adjustably controlling," this reliance is clearly misplaced as noted by *Benno*.

2. Dependent Claim 4

[2] As noted by the Supreme Court in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), obviousness is a question of law based on underlying factual inquiries. The factual inquiries enunciated by the Court included a requirement to properly ascertain the differences between the claimed invention and the prior art.

Claim 4 recites that the "control unit" must "control the drive unit to adjust the voltage applied to the electrodes during at least one of the first adjustable voltage application period and the second adjustable voltage application period such that a constant current flow between the electrodes can be maintained."

Clearly more than simply adjusting current to an appropriate level using voltage modulation (as argued in paragraph 4 of page 3 of the outstanding Final Acton) is required. Claim 4 specifically requires that the claimed adjusting of voltage must occur "during at least one of the first adjustable voltage application period and the second adjustable voltage application period" and it must result in "a **constant** current flow between the electrodes" (emphasis added) being maintained. The Examiner violates at least the above-noted *Wilder* decision in his interpretation of claim 4 subject matter.

Also, the statement at page 3 of the above-noted Advisory Action that "the applicant is asserting that modifying voltage is patentable" is in error. What is asserted to be patentable is the above-noted subject matter of claim 4 that is once again improperly ignored by the Examiner. The further observance here and in the Final Action that it is well known to affect current by voltage based upon "Ohm's law" has no reasonable applicability to the above-noted claim 4 requirement that applied voltage must be adjusted to achieve "a constant current flow between the electrodes." The Examiner commits yet another clear error in ignoring the claim limitation and/or assuming that the relied upon references teach what they do not teach.

Furthermore, the Advisory Action appears to confuse the claim 11 argument in the Final Action (at page 3 and also in paragraph number 4) as to Walsh teaching "control as to dissolution rate" as having been made as to claim 4. The dissolution rate is not what claim 4 relates to, this rate is further not relevant to claim 11 subject matter that is treated below.

3. Dependent Claim 11

Claim 11 recites that the "control unit" must "control the drive circuit to make the drive circuit adjust the overall ion elution period according to the amount of water used."

Turning first to the "intended use" allegation made as to all of claims 11-13 on page 3 of the outstanding Final Action, it is again noted that MPEP § 2173 establishes that functional limitations are not mere "intended use" statements and must be given weight as follows:

> A functional limitation is an attempt to define something by what it does, rather than by what it is (e.g., as evidenced by its specific structure or specific ingredients). There is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971).
>
> A functional limitation must be evaluated and considered, just like any other limitation of the claim for, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. A functional limitation is often used in association with an element, ingredient, or step of a process to define a particular capability or purpose that is served by the recited element, ingredient or step. In *Innova/Pure Water Inc. v. Safari Water Filtration Sys. Inc.* 381 F3d 1111, 1117-20, 72 USPQ2d 1001, 1006-08 (Fed. Cir. 2004), the court noted that the claim term "operatively connected" is "a general descriptive claim term frequently used in patent drafting to reflect a functional relationship between claimed components," that is, the term "means the claimed components must be connected in a way to perform a designated function." "In the absence of modifiers, general descriptive terms are typically construed as having their full meaning." Id. at 1118, 72 USPQ2d at 1006. In the patent claim at issue, "subject to any clear and unmistakable disavowal of claim scope, the term 'operatively connected' takes the full breath of its ordinary meaning, i.e., 'said tube [is] operatively connected to said cap' when the tube and cap are arranged in a manner capable of performing the function of filtering." Id. at 1120, 72 USPQ2d at 1008.

Further note *In re Venezia*, 530 F.2d 956, 189 USPQ 149 (CCPA 1976) in which limitations such as "members adapted to be positioned" and "portions . . . being resiliently dilatable whereby said housing may be slidably positioned" were held to serve to precisely define present structural attributes of interrelated component parts of the claimed assembly.

Thus, the attempt to dismiss the limitations of claims 11-13 as being "intended use" at page 3 of the Final Action is clear error as to each of claims 11-13.

Turning to the further allegation at page 3 of the Final Action that seems to suggest that the specific subject matter recited by claim 11 is somehow taught by '484 as to "utilizing control to apply power based on the measurements of flow sensor 210," this is not the subject matter of claim 11. Instead, it is claim 13 that has a detector to detect flow rate and recites using it to make "the drive circuit adjust at least one of the length of the first adjustable voltage application period the length of the adjustable voltage application halt period, and the length of the second

adjustable voltage application period, or the overall ion elution period" that is also different from applying power based on flow measurement.

The assertion of page 3 of the Advisory Action as to claims 11-13 is somehow taught because "the combination of prior art teaches flow sensing, time adjustability and a control unit with microprocessor" is also completely without merit as failing to address the above-noted specific subject matter of claim 11. It is also in error as to alleging the prior art as teaching "time adjustability." The Advisory Action (again at page 3) further asserts that "[t]hus the invention is entirely capable of performing the claimed functions, as the claims do not define the structure of the apparatus" which is a statement that makes no sense. In this regard, the above-noted case law and cited MPEP section holds that structure can be defined by what it does (*Swinehart*) instead of what it is. The meaning of the statement that "the invention is entirely capable of performing the claimed functions" is further unclear.

Also unclear is the assertion at page 3 of the Final Action that "Walsh teaches control of the ion dissolution rate" with no indication where this teaching is found in Walsh, a violation of 37 CFR § 1.104(c)(2) and, thus a further clear error. Moreover, the manner of the control of ion dissolution rate applying to the recited "control unit" that must "control the drive circuit to make the drive circuit adjust the overall ion elution period according to the amount of water used" is a mystery and a further error in the outstanding Final Action.

B. 103(a) Rejection of Claims 5-9, 14-16, and 21-23

1. Claim 5

Claim 5 is chosen as representative of claims 5-9, 14-16, and 21-23. Claim 5 recites more than just a current detection unit to detect current between the electrodes and the functional limitations of claim 5 cannot be dismissed as intended use or simply recitations of "what a device does."

In this regard, claim 5 recites:

> wherein the control unit is further configured to control the drive circuit based on the current flowing between the electrodes detected by the current detection unit and to check operation of the current detection unit before the drive circuit is controlled by the control unit to apply any voltage to the electrodes.

The failure to explain where in the relied upon references this claimed subject matter is taught is a clear error and a violation of 37 CFR § 1.104(c)(2). The Examiner's attempt to ignore this claim 5 recitation based upon an erroneous interpretation that this clear functional limitation is somehow an "intended use" of the apparatus and a further erroneous assumption that all intended use can be automatically ignored is further clear error.

As was noted above as to MPEP §2173 and the case law cited therein, "[a] functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the art."

Page 4 of the outstanding Final Action argues that the there cited decisions of *Ex parte Wikdahl, Ex parte McCullough, In re Finsterwalder*, and *In re Casey* all support the general proposition that the "manner in which an apparatus operates is not germane to the issue of patentability of apparatus itself." This is an erroneous assessment of the holdings in these decisions.

The *McCullough* decision actually dealt with a claim for an "electrode body" that was recited as "for use" in an energy storage device in the claim preamble. Likewise, the preamble in *Wikdahl* recited a "cyclone separator" apparatus that was "for" a specific preamble recited use. Similarly, the *Casey* decision was concerned with a claimed machine that included an intended use of the machine as a taping machine. The issue in these decisions was simply if the stated "intended use" of the claimed combination of elements was of patentable significance. The answer in these cited decisions was no, but that is not always the decision that is reached. *See In re Stencel*, 828 F.2d 751, 4 USPQ2d 1071 (Fed. Cir. 1987) that reached the opposite conclusion (yes, it was of patentable significance) and noted the following:

> There is an extensive body of precedent on the question of whether a statement in a claim of purpose or intended use constitutes a limitation for purposes of patentability. See generally *Kropa v. Robie*, 187 F.2d 150, 155-59, 88 USPQ 478, 483-87 (CCPA 1951) and the authority cited therein, and cases complied in 2 Chisum, Patents § 8.06[1][d] (1987).

In any event, the issue here is different from the issue in these cases because it involves the **definition of a claim element** making up **part of a claimed combination** (not the whole combination) by a limitation that defines the element by what that element of the claimed combination does, rather than what that element of the claimed combination is. As specifically

addressed in MPEP § 2173 and the *Swinehart* and *Innova/Pure Water* decisions cited therein (as well as the above-noted *Venezia* decision), the use of such functional limitations as definitions of the elements making up a claimed combination must be considered as positively recited limitations and given patentable weight because there is nothing inherently wrong with defining some **part of an invention in function terms**. This functional claiming of the elements making up a claimed combination, be that combination a product, an apparatus, or a machine, is clearly a different matter from the issue in *McCullough, Wikdahl,* and *Casey* as to whether the **use of an otherwise completely defined combination of elements** was of patentable significance. Moreover, even in the area of recited intended use, the decisions hold that such "use" statement must be given patentable weight if they are needed to define the invention. See the above-noted *Stencel* decision.

While the cited *Finsterwalder* decision differs slightly from the cited board decisions (*Wikdahl* and *McCullough*) and the *Casey* decision, it still is concerned with a similar issue in terms of the weight to give to the fact that a claimed combination is particularly useful to perform a specific method in a rejection based on a use in a somewhat different method. Again, the issue in *Finsterwalder* concerns the possible **use of an otherwise completely defined combination of elements**. This issue and this decision are again not relevant to claims like the claims rejected here that set forth functional limitations as definitions of the elements making up a claimed combination as specifically permitted by the above-noted controlling case law.

Turning to the decisions of *Hewlett-Packard Co. v. Bausch & Lomb Inc.* and *Demaco Corp. v. F. Von Langsdorf Licensing Ltd.* that are cited at page 4 of the outstanding Final Action for the proposition that "apparatus **claims** [not limitations of claims] cover what a device is, not what a device does" (emphasis added) are not seen to be relevant. In this regard, these cited cases speak to **claim coverage** and not what is permitted in terms of having an individual element of a claimed combination defined by a limitation that recites what that element of the claimed combination does, rather than what that element of the claimed combination is. If the Examiner's apparent interpretation that the word "claims" used in these decisions actually means "claim limitations," these decisions would be in conflict with the statute. In this respect, 35 U.S.C. § 112, paragraph six, specifically states that

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material,

> or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

Besides offering erroneous conclusions of "intended use," page 4 of the outstanding Action appears to suggest that because the artisan could program a microcomputer to act as the controller for the relied upon references, and because such a microcomputer is capable of being programmed to operate as specified by claim 5, the Examiner need show no hint of any reason to program a microcomputer to function as claim 5 specifies. This line of faulty reasoning would obviate any existing patent reciting any function that could be performed by a properly programmed programmable element. The Examiner offers no citation of authority for his patent slaying suggestion.

Claims 14-16 depend from Claim 5 and are clearly subject to an erroneous rejection for the same reasons as claim 5.

Claims 21-23 depend from respective ones of claims 14-16 and thus from claim 5. Claims 21-22 these are erroneously rejected for the same reasons claim 5 is erroneously rejected.

While claims 6-9 recite different limitations than claim 5, the overriding issue is the same as in claim 5 because these recitations are being ignored based upon the same flimsy and erroneous excuses offered as to claim 5.

VIII. CLAIMS

A copy of the claims involved in the present appeal is attached hereto as Appendix A.

IX. EVIDENCE

There is no additional evidence pursuant to §§ 1.130, 1.131, or 1.132 and/or evidence entered by or relied upon by the examiner that is relevant to this appeal as noted in Appendix B.

X. RELATED PROCEEDINGS

No related proceedings are referenced in II. above, and thus, copies of decisions in related proceedings are not provided.

XI. CONCLUSION

The reversals of the outstanding rejections of claims 2 and 4-24 are earnestly solicited.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

Dated: January 13, 2011

Respectfully submitted,

By 

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APPENDIX A

1. (Canceled)

2. (Previously presented) An ion elution unit that generates metal ions from electrodes when a drive circuit applies a voltage between the electrodes,

the ion elution unit comprising:

a water feed valve for feeding water to the ion elution unit; and

a control unit configured to control the drive circuit when the water feed valve is feeding water to the ion elution unit to firstly apply the voltage between the electrodes by applying a positive voltage potential to a first electrode during a first adjustable voltage application period to cause the first electrode to act as an anode relative to a second electrode acting as a cathode so that the first electrode will provide the metal ions during the first adjustable voltage activating period, to secondly apply no voltage difference between the first and second electrodes during an adjustable voltage application halt period, and thirdly to apply the positive voltage to the second electrode during a second adjustable voltage application period to cause the second electrode to act as the anode relative to the first electrode acting as the cathode so that the second electrode will provide the metal ions during the second voltage activating period, the control unit being further configured to adjust at least one of the length of the first adjustable voltage application period, the length of the adjustable voltage application halt period, the length of the second adjustable voltage application period, and the length of an overall ion elution period that includes at least the first adjustable voltage application period, the adjustable voltage application halt period, and the second adjustable voltage application period to adjust the amount of eluted metal ions being produced to a desired level,

wherein the electrodes are disposed along water current fed, and

wherein metal ion eluted from the electrodes are either silver ions, copper ions, or zinc ions.

3. (Canceled)

4. (Previously presented) The ion elution unit according to claim 2, wherein the control unit is further configured to control the drive circuit to adjust the voltage applied to the electrodes during at least one of the first adjustable voltage application period and the second adjustable voltage application period such that a constant current flow between the electrodes can be maintained.

5. (Previously presented) The ion elution unit according to claim 2, further comprising:

a current detection unit for detecting current flowing between the electrodes,

wherein the control unit is further configured to control the drive circuit based on the current flowing between the electrodes detected by the current detection unit and to check operation of the current detection unit before the drive circuit is controlled by the control unit to apply any voltage to the electrodes.

6. (Previously presented) The ion elution unit according to claim 2, further comprising:

a current detection unit for detecting current flowing between the electrodes,

wherein the control unit is further configured to control the drive circuit based on the current flowing between the electrodes detected by the current detection unit and to check detection operation of the current detection unit a predetermined period of time after the drive circuit is controlled by the control unit to apply any voltage to the electrodes.

7. (Previously presented) The ion elution unit according to claim 2, further comprising:

a current detection unit for detecting current flowing between the electrodes; and

a warning indicator,

wherein the control unit is further configured to control the drive circuit based on the current flowing between the electrodes detected by the current detection unit, and, when the current detection unit detects abnormal current, the control unit is further configured to control the warning indicator to issue a warning to notify a user of abnormality.

8. (Previously presented) The ion elution unit according to claim 7, wherein even if the current detection unit detects abnormal current, so long as normal current has been detected at least once during an ion elution process, the control unit does not give the warning indicator an instruction that makes the warning indicator issue the warning to notify the user of the abnormality.

9. (Previously presented) The ion elution unit according to claim 2, further comprising:

a current detection unit for detecting current flowing between the electrodes,

wherein the control unit is further configured to control the drive circuit based on the current flowing between the electrodes detected by the current detection unit, and, when the current detection unit detects that the current flowing between the electrodes is equal to or less than a predetermined level, the control unit controls the drive circuit to adjust at least one of the length of the first adjustable voltage application period, the length of the adjustable voltage application halt period, the length of the second adjustable voltage application period, or the length of the overall ion elution period.

10. (Previously presented) An appliance that incorporates the ion elution unit as set forth in claim 2, the control unit also controlling the operation of the appliance that includes an operation requiring water mixed with metal ions generated by the ion elution unit.

11. (Previously presented) The appliance according to claim 10,

wherein the control unit is further configured to control the drive circuit to make the drive circuit adjust the overall ion elution period according to the amount of water used.

12. (Previously presented) The appliance according to claim 10,

wherein the control unit is further configured to control the drive circuit to make the drive circuit adjust at least one of the length of the first adjustable voltage application period, the length of the adjustable voltage application halt period, and the length of the second adjustable voltage application period according to the amount of water used or according to the overall ion elution period.

13 (Previously presented) The appliance according to claim 10, further comprising:

a flow rate detection unit for detecting the volume of water flowing in the ion elution unit,

wherein the control unit is further configured to control the drive circuit based on a result of detection by the flow rate detection unit to make the drive circuit adjust at least one of the length of the first adjustable voltage application period the length of the adjustable voltage application halt period, and the length of the second adjustable voltage application period, or the overall ion elution period.

14. (Previously presented) An appliance that incorporates the ion elution unit as set forth in claim 5, wherein when the current detection unit detects abnormal current, the control unit executes specified countermeasures.

15. (Original) The appliance according to claim 14, wherein the specified countermeasure is a temporary stop of the appliance operation.

16. (Previously presented) An appliance that incorporates the ion elution unit as set forth in claim 5, wherein, when the current detection unit detects that the current flowing between the electrodes is equal to or less than a predetermined level, the control unit controls the water feed valve to make the water feed valve reduce the volume of water flow fed to the ion elution unit and controls the drive circuit to make the drive circuit extend the overall ion elution period.

17. (Original) The appliance according to claim 10, wherein the appliance is a washer.

18. (Original) The appliance according to claim 11, wherein the appliance is a washer.

19. (Original) The appliance according to claim 12, wherein the appliance is a washer.

20. (Original) The appliance according to claim 13, wherein the appliance is a washer.

21. (Original) The appliance according to claim 14, wherein the appliance is a washer.

22. (Original) The appliance according to claim 15, wherein the appliance is a washer.

23. (Original) The appliance according to claim 16, wherein the appliance is a washer.

24. (Previously presented) An ion elution unit that generates silver ions by applying a voltage between electrodes disposed in a water feed passage, comprising:

a drive circuit for applying the voltage between the electrodes;

a water feed valve for feeding water to the ion elution unit; and

a control unit configured to control the drive circuit when the water feed valve is feeding water to the ion elution unit to firstly apply the voltage between the electrodes by applying a positive voltage potential to a first electrode during a first adjustable voltage application period to cause the first electrode to act as an anode relative to a second electrode acting as a cathode so that the first electrode will provide the metal ions during the first adjustable voltage activating period, to secondly apply no voltage difference between the first and second electrodes during an adjustable voltage application halt period, and thirdly to apply the positive voltage to the second electrode during a second adjustable voltage application period to cause the second electrode to act as the anode relative to the first electrode acting as the cathode so that the second electrode will provide the metal ions during the second voltage activating period, the control unit being further configured to adjust at least one of the length of the first adjustable voltage application period, the length of the adjustable voltage application

halt period, the length of the second adjustable voltage application period, and the length of an overall ion elution period that includes at least the first adjustable voltage application period, the adjustable voltage application halt period, and the second adjustable voltage application period to adjust the amount of eluted metal ions being produced to a desired level,

wherein the electrodes are disposed along water current fed.

APPENDIX B

There is no additional evidence pursuant to §§ 1.130, 1.131, or 1.132 and/or evidence entered by or relied upon by the examiner that is relevant to this appeal.

APPENDIX C

There are no related proceedings.